Sea Turtle Program Overview
Southeast Fisheries Science Center
Beaufort Laboratory

In-water sea turtle population study

North Carolina Sounds (Core, Pamlico, Back) (Braun-McNeill)

The sounds of North Carolina provide important foraging habitat to juvenile loggerhead, Kemp's ridley, and green sea turtles. A long-term, mark-recapture program was established in 1988 to assess these populations, utilizing pound nets as the primary means of capturing turtles. Since 1998, when a more systematic and intensive sampling program began, it was determined that loggerheads comprise the majority (72%) of the > 3,000 turtles captured thus far; 25% of tagged loggerheads returned to particular pound nets within a season and/or from year-to-year. As a result of their high rate of recapture, data on loggerhead growth rates, sex ratios, genetic structure, seasonal distributions, site fidelity, homing behavior, and estimates of abundance have been collected. This project has been providing, and will continue to provide, the National Marine Fisheries Service with estimates of demographic parameters (survival, recruitment, emigration, and immigration) needed to construct accurate population assessments for loggerhead sea turtles. Although captures of green (21%) and Kemp's ridley (7%) turtles were not as high as loggerhead, we are still able to collect baseline demographic data.

Cape Lookout Bight (Avens)

Recent capture efforts have begun to focus on a body of water known as Cape Lookout Bight, where a seasonal aggregation of sea turtles with peak occurrence in May has been noted in the past. Although many hypotheses have been proposed to explain the large numbers of sea turtles in the Bight during this time of year, including 1) reproductive aggregation; 2) use of the Bight as a hibernaculum; and 3) aggregation around a geographic restriction (the Bight and adjacent Barden's Inlet) as turtles migrate into inshore waters, none of these explanations have been investigated in any detail. As a result, we began in May of 2007 to assess the aggregation, to capture turtles, and to begin characterizing the population inhabiting this area. Initial surveys have yielded high sightings rates (28 and 43 sightings/h), and deployment of a 100 m long, 10 in stretch mesh monofilament entanglement net resulted in a high capture rate of 6 loggerheads/net km-h. We will continue assessing the characteristics of the population with respect to size distribution, sex ratio, and genetic structure, conduct benthic sampling to investigate potential prey items, and deploy satellite tags on large juveniles to follow their movements.

Satellite Telemetry (Braun-McNeill)

Deriving more accurate estimates of density of sea turtles inhabiting North Carolina inshore and nearby coastal waters requires knowledge of their surfacing intervals. This information can be acquired easily through satellite telemetry. In addition to determining a sea turtle's proportion of time spent at the surface, this project also delineates the migratory behavior and habitat utilization of sea turtles. The resulting increase in our knowledge of sea turtle biology will in turn guide management decisions to promote the recovery of these threatened and endangered sea turtle species.

National Sea Turtle Aging Laboratory (Avens)
Research conducted by the laboratory is focused on developing and refining methods to obtain information about sea turtle ages, stage durations, and somatic growth rates, which can then be incorporated into population models used to determine population status and to predict the impacts of management efforts. Bone samples are obtained from stranded sea turtles either directly by lab personnel or through cooperation with the national Sea Turtle Stranding and Salvage Network. The samples are histologically processed and then skeletal growth marks within the bones are analysed to obtain age and growth data.